

REMARKS

The present application was filed on July 10, 2003 with claims 1 through 21. Claims 2, 6, 10-13, 16 and 18 have been previously canceled without prejudice. Claims 10-13 had been withdrawn from consideration in response to a restriction requirement. Therefore, claims 1, 3-5, 7-9, 14, 15, 17 and 19-21 are presently pending in the above-identified patent application. Applicant herein proposes to amend claims 1, 14 and 21. Support for the amendments can be found, for example, on page 8, line 4 through page 9, line 6, page 5, line 17, page 6, line 1, page 9, lines 20-21, and page 7, lines 1-26 of the specification. No new matter is being introduced.

In the Office Action, the Examiner rejected claims 1, 3-5, 7-9, 14-15, 17, and 19-21 under 35 U.S.C. §103(a) as allegedly being unpatentable over Eisenberg et al. (Nature, volume 299, 1982, pages 371-274) (hereinafter “Eisenberg”) in view of Silverman (PNA; April 24, 2001; volume 98, pages 4996-5001) (hereinafter “Silverman”) in view of Platt et al. (US Patent 5,784,294; issued 21 July 1998; filed 9 June 1995) (hereinafter “Platt”).

The Examiner is kindly thanked for the courtesy of telephonic interviews on September 17, 2010 and September 20, 2010 where the §103(a) rejection was discussed, along with possible amendments to the independent claims to overcome the cited references.

The comments of the Examiner in forming the rejections are acknowledged and have been carefully considered.

Section 103(a) Rejection

As noted above, the Examiner rejected claims 1, 3-5, 7-9, 14-15, 17, and 19-21 under 35 U.S.C. §103(a) as allegedly being unpatentable over Eisenberg in view of Silverman in view of Platt. Applicant initially notes that a proper *prima facie* case of obviousness requires that the cited references combined must “teach or suggest all the claim limitations,” and that there be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references or to modify the reference teachings. See MPEP §706.02(j). However, Applicant respectfully submits that the cited combination of references does not teach or suggest all of the limitations of the amended claims.

Applicant respectfully submit that the amendments to independent claims 1, 14 and 21, including the aspect of calculating the global hydrophobic moment via “ $\vec{h}_1 = \frac{1}{n} \sum_i h_i (x_i \hat{i} + \sqrt{g'_2} y_i \hat{j} + \sqrt{g'_3} z_i \hat{k})$, wherein \vec{h}_1 comprises the first-order hydrophobic moment given by the global linear hydrophobic moment, n comprises a total number of residues, h_i comprises an origin of distribution, wherein the origin of distribution is the residue centroids, x_i , y_i and z_i comprise coordinates having the centroid of the residue centroids as the origin, \hat{i} , \hat{j} , and \hat{k} comprise unit vectors along directions of principle axes used in the mapping of each ellipsoidal coordinate onto a sphere with radius equal to a principal axis, and g'_2 and g'_3 comprise scaled moments-of-geometry used to provide an ellipsoidal characterization of the protein structure via $g_1 x_p^2 + g_2 y_p^2 + g_3 z_p^2 = d^2$, wherein g_1 , g_2 and g_3 are moments-of-geometry, x_p , y_p and z_p are coordinates in a frame of the principle axes with the centroid of the protein structure as origin and d is a distance measure, further wherein $x_{ip}^2 + g'_2 y_{ip}^2 + g'_3 z_{ip}^2 = d'^2$, with $g'_2 = g_2 / g_1$; $g'_3 = g_3 / g_1$; $d'^2 = d^2 / g_1$, wherein d'_i is a measure of radial fractional distance of the i th residue from the center of the protein to the protein surface,” overcome the rejection. Support for the amendments can be found, for example, on page 8, line 4 through page 9, line 6, page 5, line 17, page 6, line 1, page 9, lines 20-21, and page 7, lines 1-26 of the specification.

Applicants submit that the cited references do not teach or suggest the mapping procedure or global hydrophobic moment calculation as explicitly detailed in claims 1, 14 and 21. Consequently, Applicants respectfully assert that the cited references, both alone and in combination, fail to teach the noted claimed aspect. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

5 Applicant respectfully submits that the combination of references does not teach or suggest the limitations in question, and therefore, that the §103 rejection is improper. Also, Applicant further submits that by virtue of their dependence on independent claims
10 1 and 14, claims 3-5, 7-9 and 15, 17-20, respectively recite patentable subject matter in their own right. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, Applicant respectfully requests withdrawal of the §103(a) rejection from claims 1, 3-5, 7-9, 14, 15, 17 and 19-21.

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All of the pending claims, i.e., claims 1, 3-5, 7-9, 14, 15, 17 and 19-21, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the
20 undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



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